

**Abstract**

A tail sitter VTOL vehicle with two pairs of propellers mounted respectively on left wing, right wing, top and bottom vertical tail stabilizers. The wing propellers and tail propellers spin in opposite directions. Full attitude control is realized in all flight phases through differential powering of the four propellers coordinated by electronic control system. Four propellers together generate sufficient thrust to counter gravity in hover mode, while the wings provide aerodynamic lift for efficient forward flight.